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EXAMINER

LOPEZ, FRANK D

ART UNIT PAPER NUMBER

3745

DATE MAILED: 11/04/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/069,830

Applicant(s)

HESSLING, PETER

Examiner

F. Daniel Lopez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

Claims 17, 18 and 20-22 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 does not seem to further limit claim 13, since the "peripherally cut groove" of claim 17 is included in the "peripheral groove" of claim 13.

In claim 18 line 1 "each of" should be deleted, since there is only claimed "at least one piston" (see e.g. claim 12 line 4).

In claim 20 line 4 "a groove" should be --respective grooves" to agree with the specification and the plurality of sealing rings of line 3. In claim 20 line 4 "shaft" should be --shaft.--, since all of the claims must end in a period.

In claim 21 --bearing areas in the housing, corresponding to--, since the bearing sites are on the shaft.

In claim 22 line 2 "sites" should be --areas--, to agree with the changes to claim 21, suggested above.

Claims not specifically mentioned are indefinite, since they depend from one of the above claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12, 13, 15, 17 and 18 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by EP 598,689 (see e.g. page 3 line 12-15).

Claims 12, 15, 18 and 19 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Nichols.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 14, 16 and 20-22 are rejected under 35 U.S.C. § 103 as being unpatentable over EP 598,689 in view of Eick. EP 598,689 discloses a pneumatic actuator comprising a shaft rotatable in an axial direction perpendicular to an axis of a cylinder; a piston, movable in the cylinder and including teeth extending along the axis, wherein the teeth engage teeth in a separate element (21) press fit to the shaft (e.g. page 3 line 1-2); wherein the shaft has two bearing sites of different diameters, with sealing rings in respective grooves in the bearing sites, to seal a working area from the exterior; wherein the shaft is inserted into bearing areas corresponding to the bearing sites, then the piston is engaged with the shaft; wherein the piston fixes the shaft in its axial direction by positive engagement of sides of the piston forming a groove (26) engaging sides of the toothed area, without additional fasteners (between 20 and 21, see e.g. page 3 line 12-15); wherein the toothed area of the shaft has a larger diameter than the bearing sites; but does not disclose that the bearing sites form areas where the shaft has its greatest diameter, wherein the bearing sites have essentially the same diameter.

Trenner et al teaches, for an actuator comprising a shaft (2) rotatable in an axial direction perpendicular to an axis of a cylinder; a piston, movable in the cylinder and including teeth (11) extending along the axis, wherein the teeth engage teeth of the shaft; wherein the shaft has two bearing sites (corresponding to 49, 50) of different

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diameters, such that the shaft is inserted into bearing areas corresponding to the bearing sites; that the toothed area of the shaft is integral with the shaft and slightly smaller than the larger diameter bearing site. It is understood that the purpose of making the toothed area integral with the shaft is for ease of assembly, and the purpose of the slightly smaller diameter of the toothed area is to prevent damaging the toothed area.

Since EP 598,689 and Trenner et al are both from the same field of endeavor, the purpose disclosed by Trenner et al would have been recognized in the pertinent art of EP 598,689. It would have been obvious at the time the invention was made to one having ordinary skill in the art to make the toothed area of EP 598,689 integral with the shaft and having a diameter slightly smaller than the larger diameter bearing site, as taught by Trenner et al, for the purpose of ease of assembly and to prevent damaging the toothed area. Note that the groove between the larger diameter bearing site and the toothed area would still be needed, to accommodate one side of the groove in the piston.

Since the toothed area is integral with the shaft, instead of pressed onto the shaft, there is no need for the smaller diameter bearing site to be smaller in diameter than the toothed area, except for the need of accommodating the second side of the groove in the piston. Since a groove can be cut into the shaft between the toothed area and the smaller diameter bearing site, similar to the groove between the toothed area and the larger diameter bearing site; it would have been obvious at the time the invention was made to one having ordinary skill in the art to make the smaller bearing site of the modified EP 598,689 the same diameter as the toothed area, with a groove formed between the toothed area and the smaller bearing site, as taught by EP 344,126, to accommodate the second side of the piston. Since the smaller diameter bearing site is slightly smaller than the larger diameter bearing site, the bearing sites are essentially the same diameter and have the greatest diameter of the shaft.

Claims 14, 16, 21 and 22 are rejected under 35 U.S.C. § 103 as being unpatentable over Nichols in view of Eick. EP 598,689 discloses a pneumatic actuator comprising a shaft (44) rotatable in an axial direction perpendicular to an axis of a cylinder; a plastic piston (62, 66), movable in the cylinder and including teeth (74) extending along the axis, wherein the teeth engage teeth (60) in a separate element (50) attached to the shaft; wherein the shaft has two same diameter bearing sites; wherein the shaft is inserted into bearing areas corresponding to the bearing sites, then the piston is engaged with the shaft; wherein the piston fixes the shaft in its axial direction by positive engagement of sides (72) of the piston forming a groove engaging sides of the toothed area, without additional fasteners; wherein the toothed area of the shaft has a larger diameter than the bearing sites; but does not disclose that the bearing sites form areas where the shaft has its greatest diameter.

Trenner et al teaches, for an actuator comprising a shaft (2) rotatable in an axial direction perpendicular to an axis of a cylinder; a piston, movable in the cylinder and including teeth (11) extending along the axis, wherein the teeth engage teeth of the shaft; wherein the shaft has two bearing sites (corresponding to 49, 50), such that the shaft is inserted into bearing areas corresponding to the bearing sites; that the toothed area of the shaft is integral with the shaft and slightly smaller than the larger diameter bearing site. It is understood that the purpose of making the toothed area integral with the shaft is for ease of assembly, and the purpose of the slightly smaller diameter of the toothed area is to prevent damaging the toothed area.

Since Nichols and Trenner et al are both from the same field of endeavor, the purpose disclosed by Trenner et al would have been recognized in the pertinent art of Nichols. It would have been obvious at the time the invention was made to one having ordinary skill in the art to make the toothed area of Nichols integral with the shaft and having a diameter slightly smaller than the larger diameter bearing site, as taught by Trenner et al, for the purpose of ease of assembly and to prevent damaging the toothed area. Note that a groove between each bearing site and the toothed area would be needed, to accommodate the sides of the groove in the piston.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Lopez whose telephone number is (703) 308-0008. The examiner can normally be reached on Monday-Thursday from 6:30 AM -4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Look, can be reached on (703) 308-1044. The fax number for this group is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0861.



F. Daniel Lopez
Primary Examiner
Art Unit 3745
October 31, 2003